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USAEHA

Safety, Health, and Fire Prevention Guide for Hospital Safety Managers

U.S. Army Environmental Hygiene Agency
Aberdeen Proving Ground, Maryland 21010-5422

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Participation in hospital safety programs is essential for all military and civilian employees.

This guide outlines a variety of safety, health, and fire prevention issues and provides a ready reference for more detailed information.

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Contents (Listed by paragraph)

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REPLY TO ATTENTION OF

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USAEHA TECHNICAL GUIDE NO. 152

SAFETY, HEALTH, AND FIRE PREVENTION GUIDE FOR HOSPITAL SAFETY MANAGERS

Chapter 1
Introduction

1-1. Purpose

a. This technical guide (TG) --

(1) Provides guidance to --

(a) Individuals responsible for safety, health, and fire prevention at Army hospitals.

(b) The experienced full-time safety person who is new to the hospital setting.

(c) Military personnel assigned safety, health, and fire prevention as a collateral duty.

(2) Outlines a variety of safety, health, and fire prevention issues and provides references for more detailed information. This TG, however, is not designed to cover all safety, health, and fire prevention issues, nor does it detail completely the subjects it addresses.

(3) May supplement local requirements in locations outside of the continental United States.

b. Any reference in this TG to safety managers also includes safety officers.

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*This technical guide supersedes TG 152, April 1987.

1-2. References

Appendix A lists the publications pertaining to this technical guide.

1-3. Abbreviations

Appendix B lists the various abbreviations used in this technical guide.

1-4. Technical assistance

Appendix C lists personnel available to provide technical assistance.

Chapter 2
Safety Management

2-1. Safety policy statement

Health Services Command (HSC) Supplement (Suppl) 1 to Army Regulation (AR) 385-10 and the Joint Commission for the Accreditation of Hospitals, Accreditation Manual for Hospitals (JCAHO AMH) Standard PL.1.2.4.1 require each U.S. Army Medical Center (MEDCEN), U.S. Army Medical Department Activity (MEDDAC), and U.S. Army Dental Activity (DENTAC) commander to publish and disseminate a safety policy statement immediately after assuming command. The statement should--

a. Convey the hospital commander's support and objectives for the safety program and views pertaining to accident prevention (that is, protection of patients, staff, visitors, and the facility).

b. Describe recent safety policy correspondence (such as policy letters pertaining to accident prevention) from the installation commander or higher headquarters, when applicable.

c. Request the support of all military and civilian employees and inform them that their participation in the hospital safety program is a job requirement.

d. Direct department heads to review their safety standing operating procedure (SOP) and submit a current copy to the safety manager.

e. Assign the safety manager the authority to manage the hospital safety program.

2-2. Safety program

a. Background. According to HSC, activity occupational safety and occupational health programs are organized to support the command mission by ensuring patients, visitors, and military/civilian staff are provided a safe and healthful environment. HSC commanders have organized the office of the safety manager as a separate element. The safety manager is a special staff officer and reports directly to the MEDCEN/MEDDAC/DENTAC commander on all matters related to occupational safety and occupational health.

b. Safety functions. The hospital safety manager--

(1) Develops, implements, and monitors the hospital safety program.

(2) Manages an ongoing hospital-wide process to collect and evaluate information about hazards and safety practices. This process identifies safety management issues for the safety committee to address per JCAHO AMH Standard PL.1.3 and 1.3.1.

2-3. Smoking policy

a. Background. JCAHO AMH Standard MA.1.3.15 and HSC Suppl 1 to AR 385-10 require healthcare facility commanders to disseminate and enforce a written policy prohibiting the use of smoking materials throughout the hospital.

b. Safety functions. The hospital safety manager should ensure that signs enforcing the hospital smoking policy are posted and easily visible per AR 600-63.

c. Further information. AR 600-63 details requirements for the smoking policy in areas controlled by the Department of the Army (DA).

2-4. Safety orientations

a. Background. JCAHO AMH Standard PL.1.5 requires that all new personnel be oriented to the hospital safety program.

b. Safety functions. The hospital safety manager should--

(1) Conduct a safety orientation for newly assigned civilian and military personnel within 30 days of their reporting to work. The orientation, which may be conducted as a part of the overall hospital orientation, should include a discussion of the following:

(a) Fire reporting and evacuation procedures per the National Fire Protection Association (NFPA).

(b) Use of portable fire extinguishers.

(c) The hospital smoking policy.

(d) Accident reporting.

(e) Injury prevention (slips, trips, falls, needlesticks, and back injuries).

(f) Reporting safety hazards.

(g) Mandatory use of vehicle restraining devices.

(h) Seasonal safety programs, when applicable.

(i) Hazard communication.

(2) Ensure that supervisors orient military and civilian employees to the specific safety and fire prevention procedures relative to their work assignments.

(3) Develop and implement procedures to document safety orientation training, including departmental safety orientation training.

c. Further information. NFPA 101, section 31-4; HSC Suppl 1 to AR 385-10; and JCAHO AMH Standard PL.1.5 detail requirements for safety orientations.

2-5. Safety committee

a. Background. HSC Suppl 1 to AR 385-10 and JCAHO AMH Standard PL.1.4 require the hospital commander to appoint a multidisciplinary safety committee. It is good practice to limit the safety committee to department staff members retaining responsibility for hospital safety and fire prevention.

(1) *Membership.* Representatives from the following should compose the committee:

(a) Management.

(b) The medical staff.

(c) The nursing service.

(d) Logistics.

(e) Nutritional care.

(f) Preventive medicine.

(g) The medical maintenance branch.

(h) Housekeeping.

(i) The laboratory.

(j) Risk management.

(k) The safety office.

(l) Activity senior medical noncommissioned officer.

(m) Engineering and maintenance.

(n) Infection control.

(2) *Meetings.* HSC Suppl 1 to AR 385-10 and JCAHO AMH Standard PL.1.4.1 require the safety committee to--

(a) Meet at least bimonthly to analyze identified safety management issues.

(b) Develop or approve recommendations to resolve them.

(c) Maintain written meeting minutes.

(3) *Authorization.* HSC Suppl 1 to AR 385-10 and JCAHO AMH Standard PL.1.2.4.1 require the hospital commander to establish policies or procedures so that the safety committee chairperson and safety manager are authorized to take action when a hazardous condition exists.

b. Safety functions. Per JCAHO AMH Standard PL.1.4.2, the safety manager works with the department staff to implement safety committee recommendations and to monitor the effectiveness of any changes.

2-6. Oxygen quality assurance program

a. Safety functions. To meet requirements of HSC Suppl 1 to AR 385-10 and JCAHO AMH Standard PL.3, the hospital safety manager should establish written policies and procedures for receiving, inspecting, and storing liquid oxygen and cylinder oxygen. These policies should specify that--

(1) Only hospital personnel trained in the use of an oxygen analyzer will monitor oxygen deliveries. (Dental clinic personnel commonly obtain their compressed gas cylinders from the hospital after the cylinders are analyzed by trained hospital personnel.)

(2) Oxygen systems (liquid or cylinder) must meet an oxygen concentration no less than 95 percent per HSC Suppl 1 to AR 385-10.

b. Further information. HSC Suppl 1 to AR 385-10 details requirements of oxygen quality assurance.

2-7. Safety and fire prevention library

a. Safety functions. The hospital safety manager should maintain a current and comprehensive safety and fire prevention library per HSC Suppl 1 to AR 385-10. As a minimum, the library should include:

(1) Current copies of Army safety regulations with applicable supplements.

(2) A complete and current set of NFPA codes.

(3) The Occupational Safety and Health Administration (OSHA) General Industry Standards.

(4) The JCAHO Accreditation Manual.

(5) Appropriate American National Standards Institute (ANSI) standards.

(6) Appropriate Compressed Gas Association pamphlets.

b. Further information. HSC Suppl 1 to AR 385-10 details the contents of a safety and fire prevention library.

2-8. Safety services to Dental Activities

a. Background.

(1) HSC Suppl 1 to AR 385-10 requires that full-time safety managers of MEDCENs and MEDDACs--

(a) Provide safety services to DENTACs.

(b) Support the DENTAC/area dental laboratory (ADL) commanders in implementing and maintaining their safety programs.

(2) If the services of a full-time safety professional are not provided, the DENTAC/ADL commander designates, on orders, an alternate safety officer to help administer the program per HSC Suppl 1 to AR 385-10.

b. Safety functions. The MEDCEN/MEDDAC safety manager provides the following services to DENTACs:

(1) Accident investigation and reporting.

(2) Safety and fire prevention surveys (with a written report of findings and recommendations for corrective action).

(3) Safety and fire prevention orientations for newly assigned military and civilian personnel.

c. Further information. HSC Suppl 1 to AR 385-10 details the safety services provided to DENTACs.

Chapter 3
General Safety

3-1. Medical gas piping systems

a. Labeling. To meet requirements of NFPA 99, section 4-6.4.11, the hospital safety manager should ensure that medical gas piping systems are readily identified and labeled--

(1) With the name of the gas by a means that is not readily removable, such as stenciling, metal tags, stamping or adhesive markers.

(2) At intervals not to exceed 20 feet.

b. Shut off valves.

(1) *Background.* NFPA 99, section 4-6.4.1.4, requires the provision of medical gas shut off valves outside of patient rooms and inside or outside each anesthetizing location.

(2) *Safety functions.* To meet the requirements of JCAHO AMH Standard PL.4.5.1, the hospital safety manager should ensure that shut off valves are labeled to indicate the rooms or areas they control. Relabeling may be required in older facilities where labeling is illegible.

c. Alarms for gas systems.

(1) *Background.* Each medical gas piping system must have a master alarm system installed in the main line, immediately downstream of the main-line shutoff valve. This alarm system must provide an audible and visual signal on the master alarm signal panels are located in two separate areas (that is, the principal working area of individuals responsible for maintenance of the system and the telephone switchboard or security office).

(2) *Safety functions.* The safety manager should ensure that the required periodic retesting of audible and visual alarm indicators are performed to determine if they are functioning properly and that records of the tests are maintained.

(3) *Further information.* NFPA 99, sections 4-4.1.1.2 and 4-4.1.1.3, details requirements for gas system alarms.

3-2. Compressed gas cylinders

a. Safety functions. The hospital safety manager should ensure that--

(1) Compressed gas cylinders are secured at all times to include when in transit. Chains or a specially constructed rack are the preferred methods for securing cylinders.

(2) Flammable gas cylinders are separated from nonflammable gas cylinders and from oxidizing materials, such as oxygen and nitrous oxide per NFPA 99, section 4-6.2.1.2(a).

(3) Full and empty cylinders are separated, and that empty oxygen cylinders are marked "empty" or "MT" to avoid confusion in an emergency situation.

(4) Cylinder valve protection caps, when provided, are in place and hand-tightened per NFPA 99, section 4-6.2.1.2(n).

(5) Cylinders are stored out of direct sunlight and off of the ground.

(6) Appropriate signs are posted (such as "no smoking," "secure all free-standing cylinders," and "flammable") in use and storage areas.

(7) Cylinder carts are used to transport compressed gas cylinders.

(8) A Department of Defense (DD) Form 1191, *Warning Tag for Medical Oxygen Equipment*, is attached to each oxygen cylinder upon receipt from the vendor at the medical supply receiving dock. The warning tag aids in preventing accidents from misuse of oxygen equipment.

b. Further information. NFPA 99, section 4-6.2.1.2; Technical Bulletin Medical (TB MED) 245; AR 700-68; the Compressed Gas Association (CGA) Pamphlet P-2, *Characteristics and Handling of Medical Gases*; CGA Pamphlet P-1, *Safe Handling of Compressed Gases In Containers*; and CGA Pamphlet G-4, *Oxygen* detail requirements for compressed gas cylinders.

3-3. Medical air compressors

a. Background. JCAHO AMH Standard PL.4 requires a utilities management program to assure the operational reliability, assess the special risks, and respond to failures of utility systems that support patient care. This requirement applies to medical air compressors.

b. Safety functions. The hospital safety manager should ensure that--

(1) Medical air compressors are oil-free units per NFPA 99, section 4-3.1.9.1.

(2) Medical air compressors are installed so that the outside atmosphere provides the air source per NFPA 99, section 4-3.1.9.1.

(3) Per NFPA 99, section 4-3.1.9.2, intakes (turned down and screened) are located--

(a) Outdoors.

(b) Above roof level at a minimum distance of 10 feet from any door, window, intake, or opening in the building.

(c) At a minimum distance of 20 feet above the ground.

c. Further information. NFPA 99, section 4-3.1.9.1, details requirements for medical air compressors.

3-4. Machine guarding

a. Background. Unguarded fan blades and unguarded machinery belt drives are often found in the workplace. An air compressor with a guard installed on only one side of the belt drive is a common example of insufficient guarding.

b. Safety functions. To prevent accidental injury, the hospital safety manager should ensure that--

(1) All power machinery and equipment with exposed rotating parts are guarded per 29 Code of Federal Regulations (CFR) 1910.219, 1910.212, and 1910.213.

(2) All fan blades and machinery belt drives installed within 7 feet of the floor have an appropriate guard per 29 CFR 1910.212(a)(5).

(3) Spaces in wire mesh guarding are no larger than one-half inch per 29 CFR 1910.212(a)(5).

c. Further information. 29 CFR 1910.212(a)(5), 1910.213(a)(9) and 1910.219.(e)(1)(i) detail requirements for machine guarding.

3-5. Compressed air

a. Background. Compressed air is used for cleaning in dental laboratories, brace shops, and occasionally, medical maintenance shops.

b. Safety functions. The hospital safety manager should ensure that--

(1) Employees using compressed air for cleaning--

(a) Use effective chip guarding and appropriate personal protective equipment per 29 CFR 1910.242(b).

(b) Limit compressed air for cleaning to less than 30 psi.

(c) Refrain from using compressed air for other purposes, such as cleaning themselves.

(2) Adequate air guns for chip guarding are provided.

3-6. Protective clothing and equipment

To meet the requirements of 29 CFR 1910.132(a), AR 40-5, TB MED 506 and TB MED 6, the hospital safety manager should ensure that workers use appropriate protective clothing and equipment (PCE) when necessary. The following paragraphs outline a few hospital activities and the appropriate PCE requirements for each:

a. When mixing photographic chemicals, personnel require chemical resistant goggles or a fullface shield, a rubber apron, and chemical resistant (rubber) gloves.

b. Personnel operating portable saws to remove casts require hearing protection and protective eyewear.

c. Patients and staff operating machinery in occupational therapy clinics require protective eyewear and hearing protection.

d. Maintenance personnel and visitors require hearing protection while testing the emergency generator(s).

e. Personnel operating an incinerator require surgical head cover, surgical face mask, goggles, surgical gown, shoe covers, and gloves.

f. Laundry personnel require separate work clothes and gloves when sorting laundry, and must change from work clothes to street clothes upon completion of their workshift.

3-7. Grab bars

a. Safety functions. The hospital safety manager should--

(1) Ensure that grab bars are provided in all patient toilet and bathing areas so that a patient sitting on a toilet or in a bathtub is able to reach a grab bar, per the Uniform Federal Accessibility Standard 4.20.4.

(2) Ensure that contractors install grab bars properly during remodeling and construction projects prior to patient occupancy.

(3) Examine grab bars periodically for stability.

b. Further information. Uniform Accessibility Standards 4.20.4 and 4.21.4 detail requirements for grab bars.

3-8. Nurse-call system

a. Background. As a general rule, reliable nurse-call devices that function 24 hours a day should be installed in locations where patients may be unattended, such as each patient bed, toilet, shower, and bathtub.

b. Safety functions. To meet the requirements of HSC Suppl 1 to AR 385-10, the hospital safety manager should develop a program to ensure the maintenance of patient care equipment. Specifically, the hospital safety manager should--

(1) Ensure that nurse-call devices are installed in the above specified patient locations.

(2) Test the nurse-call system periodically to ensure proper working order.

(3) Ensure that nurse-call devices purchased for, and used in, areas where oxygen is administered are approved for use in oxygen-enriched atmospheres per NFPA 99, sections 7-6.2.3.2 and 9-2.1.7.2.

c. Further information. NFPA 99, sections 8-2.1.2.3 and 9-2.1.8.2, details requirements applicable to nurse-call systems.

3-9. Handrails

a. Background. The lack of handrails is a safety hazard that sometimes exists at entrances to medical treatment facilities and outlying buildings.

b. Safety functions. The hospital safety manager should ensure that handrails or stair railings are provided on all indoor and outdoor stairways of four or more raisers (steps) per 29 CFR 1910.23(d)(1).

3-10. Walk-in refrigerators

a. Safety functions. The hospital safety manager should ensure that walk-in refrigerators and freezers have doors that permit opening from the inside, even when locked.

b. Further information. NSF Standard 7, section 5.3, establishes requirements for the doors of refrigerators and freezers.

3-11. Audiometric testing booth

The hospital safety manager should ensure that two-way doorlatches (without locks) are attached to the door of the booth to permit egress at all times per DA Pamphlet (DA Pam) 40-501.

3-12. Snow and ice removal

The hospital safety manager should ensure that--

a. Building exits and adjoining walkways are free of obstructions, including accumulations of snow and ice per NFPA 101, section 5-1.7.3.

b. A roof protects any exterior exit access, (such as a door exiting to an open outdoor stairway) when the climate makes the accumulation of snow or ice likely, per NFPA 101, section 5-5.3.8.

3-13. Water for emergency use

The hospital safety manager should ensure that--

a. A deluge shower and fixed eyewash are provided wherever the eyes or body of a person are possibly exposed to injurious corrosive materials per 29 CFR 1910.151(c) and NFPA 99, section 10-6. The number of units and locations depends on the hazards involved.

b. Deluge showers and fixed eyewashes are flushed weekly to ensure proper operation per ANSI Z358.1-1990, section 4.7.

c. A written record of flushing procedures is maintained as proof of compliance per ANSI Z358.1-1990, section 7.5.1.

d. Access to the deluge shower(s) and eyewash(es) is kept clear at all times, and a highly visible sign is posted to indicate the location of this equipment per ANSI Z358.1-1990, section 4.6.2.

3-14. Self-contained breathing apparatus (SCBAs)

Per 29 CFR 1910.134(e)(5), the hospital safety manager should--

a. Ensure that when SCBAs are provided, personnel are trained in the care and use of the SCBA.

b. Provide written procedures for the safe use of the SCBA.

c. Ensure that each SCBA is inspected monthly and that employees are properly fit tested.

3-15. Hazard communication

a. Background. The hospital safety manager should develop a written hazard communication program that assigns responsibilities and describes policies and procedures for identifying, handling, storing, and using hazardous chemicals from receipt to disposal. The written procedures should--

(1) Describe the manner in which hazardous chemical inventories are developed and maintained.

(2) Describe the procedures to follow in notifying the manufacturer in the event a hazardous chemical label is incorrect or inadequate.

(3) Describe the role of the material safety data sheet (MSDS), and designate a person(s) responsible for obtaining and/or maintaining MSDSs.

(4) Designate a person(s) responsible for ensuring hazardous chemical containers are properly labeled.

(5) Designate a person(s) responsible for conducting and documenting training.

(6) Identify employees for inclusion in the program.

(7) Describe the methods used to inform employees of hazards associated with nonroutine tasks.

(8) Include the methods used to inform employees of hazardous chemicals in unlabeled pipes in their work areas.

(9) Provide provisions to periodically evaluate the effectiveness of hazard communication.

b. Further information. 29 CFR 1910.1200 details the requirements of hazard communication.

Chapter 4
Electrical Safety

4-1. Liaison

The hospital safety manager should maintain close liaison with the Chief of the Medical Maintenance Branch, who is the hospital electrical safety expert. The Chief of the Medical Maintenance Branch tests, maintains, and repairs biomedical equipment for the MEDDAC/MEDCEN and DENTAC. The Chief of the Medical Maintenance Branch can advise the hospital safety manager about electrical safety hazards and determine which hazards may be repaired in-house, and which require a work order request to the Director of Engineering and Housing (DEH).

4-2. Leakage tests on equipment

a. Background.

(1) Medical Maintenance Branch personnel perform and document current leakage tests on all patient care electrical and electronic equipment. The testing, and other electrical requirements, depend on whether the equipment is located in a critical care or general care area, and whether the area is classified as a wet location per HSC Regulation 750-1.

(2) HSC Regulation 750-1 requires that commanders designate, in writing, which locations within the hospital are critical care areas, general care areas, and wet areas. NFPA 99, section 12-2.6 requires, and The Surgeon General prescribes, that the following are critical care areas for Army hospitals: operating rooms, delivery rooms, coronary care units, intensive care units, special care units, angiography laboratories, cardiac catheterization laboratories, and similar areas where patients are subjected to invasive procedures and connected to line-operated electromedical devices.

b. Safety functions. Per HSC Suppl 1 to AR 385-10 and AR 40-61, section 6-5, the hospital safety manager in coordination with the safety committee, oversees the management of--

(1) The nonpatient care, electrically powered, line operated equipment.

(2) The patient personnel electrical equipment.

4-3. Patient care equipment

a. *Safety functions.* To meet requirements of HSC Suppl 1 to AR 385-10 and JCAHO AMH Standard PL.3, the hospital safety manager must establish a safety program for patient care equipment and obtain the hospital commander's endorsement.

(1) The hospital safety manager should ensure that--

(a) The program meets the requirements of HSC Regulation 750-1.

(b) The program encompasses all patient care equipment including:

- Electrically and non-electrically powered equipment.
- Equipment that is leased, loaned, or owned.
- Fixed and portable equipment used for diagnosis, treatment, monitoring, and care of patients including all medical and laboratory equipment.

(c) The written program includes the following:

- A list of all powered equipment used for patient care, and a list of non-patient care electrical equipment included in the electrical equipment safety program.
- Established safety and performance testing criteria for all equipment listed.
- Documentation of equipment testing.
- Procedures for identifying and correcting equipment malfunctions.
- User/operator instructions for equipment listed.
- Documented orientation and continuing education training for individuals who use or maintain electrically powered equipment.

(2) The hospital safety manager must evaluate non-patient care, fixed and portable electrically powered equipment such as typewriters, lamps, clocks, microwave ovens, buffers, etc. for inclusion in the non-patient care electrical equipment safety program. (These items, however, are not required on biomedical maintenance preventive maintenance inventories.)

b. Further information. NFPA 99, Chapter 7; HSC Regulation 750-1; and JCAHO AMH Standard PL.3 detail the requirements of electrical equipment in healthcare facilities.

4-4. Emergency system electrical receptacles

a. Safety functions. The hospital safety manager should ensure that--

(1) Emergency system electrical receptacles are distinctively identified per NFPA 99, section 3-4.2.3.4(b).

(2) Receptacles in critical care areas are marked to indicate the panelboard and circuit number supplying them per NFPA 70, section 517-19.

b. Further information. NFPA 99, section 3-4.2.3, and NFPA 70, section 517-19(a) requirements for the receptacles of emergency electrical systems.

4-5. Tamperproof electrical receptacles

The hospital safety manager should ensure that pediatric wards and clinics, and psychiatric wards contain tamperproof electrical receptacles per NFPA 70, section 517-18(c). Tamperproof receptacles are designed to prevent an electrical shock from metallic objects possibly inserted into the receptacle slots.

4-6. Ground-fault circuit interrupter

The hospital safety manager should ensure that ground-fault circuit interrupter (GFCI) protection is provided for each circuit supplying receptacles in hydrotherapy units per NFPA 70, section 680-62(a) and AR 420-43, paragraph 4-3. These GFCIs are usually installed in the receptacle, however, some contractors place them in the circuit breaker panelboard. In the event of a current leakage, a GFCI will deenergize the electrical circuit to the hydrotherapy unit instantaneously, preventing a person from receiving a fatal shock.

4-7. Required electrical receptacles

The hospital safety manager should ensure that--

a. Each patient bed in a general care area contains a minimum of four single, or two duplex electrical receptacles per NFPA 70, section 517-18.

b. Each patient bed in a critical care area contains six single, or three duplex receptacles per NFPA 70, section 517-19.

4-8. Use of personal electrical equipment

a. Background. HSC Reg 750-1 and JCAHO AMH Standard PL.3.1.1 require hospitals to establish and maintain a written policy for the control of personal electrical equipment (that is, equipment not supplied by the hospital). The policy should--

(1) Identify the specific types of equipment that patients and staff members are permitted to bring into the hospital without inspection. Such equipment may include electric or battery-operated toothbrushes; or small direct-current, battery-operated radios.

(2) Indicate what equipment is prohibited, such as heaters, and describe the procedure for the inspection of equipment prior to its use in the hospital.

b. Safety functions.

(1) The hospital safety manager may be the individual named in the policy to inspect personal electrical equipment prior to its use in the hospital. The medical maintenance staff may share in this role.

(2) Although the nursing staff has the primary enforcement responsibility, the hospital safety manager should also ensure that the policy is enforced.

4-9. Generators as an alternate source of power

a. Background. JCAHO AMH Standard PL.4.2 requires at least one adequate generator set, located on the grounds of the hospital, for use as the hospital's alternate power source. The generator--

(1) Requires weekly inspection and monthly exercise under full load and operating temperature conditions for at least 30 minutes per NFPA 99, section 3-5.1.2.3(b).

(2) Must be capable of supplying service within 10 seconds of a power failure per NFPA 99, sections 3-3.2.1.8, 3-5.1.2.1, and 3-5.1.2.3.

b. Safety functions. The safety manager is responsible for coordinating with hospital maintenance personnel to monitor appropriate generator testing.

c. Further information. NFPA 99; sections 3-3.2.1.8, 3-5.1.2.3, and 3-5.1.2.1; details requirements for generators as alternate sources of power.

4-10. Rules and regulations for anesthetizing locations

a. Background. NFPA 99, section 12-4.1.4.3, requires that rules and regulations for safe work practices be posted prominently in nonflammable anesthetizing locations.

b. Safety functions.

(1) The hospital safety manager, the safety committee, and the operating room professional staff should coordinate to formulate the necessary rules and regulations for control of personnel concerned with anesthetizing locations.

(2) Upon adoption of these rules and regulations, the hospital safety manager should ensure that operating personnel prominently post the rules and regulations in the operating room suites.

c. Further information. NFPA 99, sections 12-4.1.5.5 and 12-4.1.1.5, details requirements for the rules and regulations of anesthetizing locations.

4-11. Marking power disconnectors

To comply with NFPA 70, section 110-22, the hospital safety manager should ensure that--

a. All means of power disconnection (such as circuit breakers, fuses, and master switches) are legibly marked to indicate their specific purpose, unless located and arranged so that the purpose is evident.

b. Panelboard directories of circuit breakers are maintained to reflect current use.

4-12. Access to keys

To comply with NFPA 70, section 240-24(b), the hospital safety manager should ensure that keys to electrical closets and circuit breaker panelboards are available to nursing personnel on each ward for use in emergencies. An acceptable practice is to place the keys at the nursing station, or on the key ring of the head nurse of each workshift.

4-13. Extension cord policy

a. Background. HSC Suppl 1 to AR 385-10 requires that the hospital establish and maintain a policy for the use of extension cords and adaptors.

b. Safety functions. To enforce this policy, and comply with 29 CFR 1910.305(g)(1)(iii) and NFPA 70, section 400-8, the hospital safety manager should ensure that extension cords--

(1) Are not used as a substitute for fixed wiring of a structure.

(2) Do not run through holes in walls, ceilings, floors, doorways, or windows.

(3) Are used only in emergency situations.

(4) Are 16 gauge or heavier and equipped with grounding-type attachment plugs and outlets.

c. Further information. 29 CFR 1910.305(g)(1)(iii) and NFPA 70, section 400-8 detail requirements for extension cords.

Chapter 5
Fire Prevention and Fire Protection

5-1. Liaison with the Logistics Division

a. Background. The hospital safety manager's close liaison with the Logistics Division is essential for an effective fire prevention and fire protection program.

b. Safety functions. The hospital safety manager should--

(1) Coordinate with the Logistics Division to establish and maintain a procedure for the hospital safety manager's review of all purchase or service requests and contracts that involve fire prevention and protection. This includes such items as cubicle curtains, draperies, floor and ceiling cover, cleaning of hoods and ducts, and the installation of sprinkler systems.

(2) Encourage the hospital commander to support this procedure which is essential to fire prevention and protection.

c. Further information. JCAHO AMH Standard PL.2 provides further guidelines concerning fire prevention and protection.

5-2. Fire exit drills

a. Safety functions. The hospital safety manager should--

(1) Conduct fire exit drills at least quarterly, on all three shifts, in each patient-occupied building to meet requirements of NPFA 101, section 31-4.1.2 and JCAHO AMH Standard PL.2.3.2.3.

(2) Compose and maintain a report of each drill to document compliance, per JCAHO AMH Standard PL.2.4.

(3) Visit all wards, on all shifts, at least annually to discuss fire exit drills and to review with employees the hospital fire prevention program.

b. Other functions. During fire exit drills--

(1) Patient evacuation is unnecessary per NFPA 101, section 31-4.1.2.

(2) Management should ensure that all personnel actively participate, except those employees involved in treating patients.

(3) Installation fire department participation is important, but not necessary.

5-3. Exit markings

The hospital safety manager should ensure that exits are marked with an exit directional sign ("EXIT" with an arrow pointing the direction) in every location where the direction of the nearest exit is not immediately apparent, per NFPA 101, sections 5-10.4.1 and 5-10.1.2. Exit markings are usually in compliance with these requirements except during construction or remodeling projects. The hospital safety manager should be more alert to this matter while construction or remodeling projects are underway.

5-4. Fire prevention signs

The hospital safety manager should ensure that--

a. Fire prevention signs are highly visible and easy to read.

b. Fire alarm box instructions, kitchen hood extinguishing system instructions, "no smoking" signs, exit signs, and other applicable messages are bilingual when appropriate.

5-5. Fire department visits

a. Background. The installation fire department is a visitor to the hospital. In addition to routine services, such as checking fire extinguishing systems, many fire departments will conduct pre-fire planning surveys of the hospital. At such times, fire department personnel plan hose lays and other procedures required in the event of a fire in a specific location.

b. Safety functions. The hospital safety manager should--

(1) Coordinate and monitor the fire department's scheduled visits.

(2) Advise the safety committee of when the fire department is scheduled to visit.

(3) Inform hospital personnel about each fire department visit.

5-6. Protecting hazardous areas

a. Background.

(1) NFPA 101, section 6-4.1.1, requires that every hazardous area in existing hospitals be protected with either a 1-hour fire-resistive enclosure, or an automatic fire extinguishing system (sprinklers).

(a) Fire-resistive construction is defined as building materials or assemblies that will withstand a fire exposure for a designated period of time measured in hours or minutes.

(b) Hazardous areas may include trash collection and soiled linen rooms, occupational therapy clinics, boiler rooms, repair and maintenance shops, and storage/supply rooms.

(2) Some laboratories at Army facilities are considered a severe fire hazard (depending on the fire load) and require both 1-hour fire resistive construction and a sprinkler system per NFPA 101, section 6-4.1.1, and NFPA 99, section 10-1 through 10-8.

b. Safety functions. The hospital safety manager should ensure that--

(1) All sprinkler system flow alarms are connected to the fire alarm system.

(2) There is minimal interference with the sprinkler system's discharge pattern per 29 CFR 1910.159(c)(10). (Storage space in Army hospitals is usually at a premium and storage rooms are sometimes stocked to the ceiling, thereby interfering with the discharge pattern.)

(3) Eighteen inches of vertical clearance exists between the sprinkler deflectors and the top of storage items per 29 CFR 1910.159(c)(10).

c. Further information. NFPA 101, section 13-3.2.1, details fire protection and prevention requirements for hazardous areas. NFPA 101, section 13-3.5.2, details exceptions to requirements for sprinkler systems. JCAHO AMH Standard PL.2 outlines appropriate guidelines for a life safety management program based on the NFPA codes.

5-7. Fire and smoke doors

a. Fire-rated doors.

(1) *Background.* A fire-rated door or door assembly includes the frame, door leaf, and hardware. Such doors are located in stairway enclosures and enclosures to hazardous areas.

(2) *Safety functions.* The hospital safety manager should ensure that--

(a) Fire-rated doors are the swinging type and contain side hinges.

(b) Fire-rated door leaves and frames are labeled with the door and frame rating. The label for the door is usually on the inside edge or on the top of the door, and the label for the frame is usually directly below the top hinge.

(c) Fire-rated doors are self-closing and equipped with a positive latching device.

(d) Stairway doors are posted with a sign that stipulates "FIRE EXIT Keep Door Closed" on the side of the door from which egress is made.

b. Ordinary room doors. The hospital safety manager should ensure that ordinary room doors (such as doors to patient rooms)--

(1) Are the swinging type and contain side hinges.

(2) Are 1 3/4-inch solid bonded core wood or rated to resist fire for at least 20 minutes (except in buildings with sprinkler systems throughout).

NOTE: Ordinary room doors do not require a label or a self-closing device.

c. Smoke barrier doors.

(1) *Safety functions.* The hospital safety manager should ensure that--

(a) Smoke barrier doors are the swinging type per NFPA 101, section 13-3.7.6, and contain side hinges.

(b) Smoke barrier doors have a fire-resistance rating of 20 minutes per NFPA 101, section 6-3.4.2(a), or are 1 3/4-inch solid bonded core wood per NFPA 101, section 13-3.6.3.1.

(c) Smoke barrier doors are self-closing per NFPA 101, section 6-3.4.3.

NOTE: Smoke barrier doors do not require a label.

(2) *Further information.* NFPA 101, sections 13-2.2.2.6 and 13-3.7.6, details other requirements for smoke barrier doors.

5-8. Vision panels

a. Safety functions. The hospital safety manager should ensure that vision panels (windows)--

(1) In corridor walls and doors are fixed, wired glass encased in steel or approved metal frames, and do not exceed 1,296 square inches.

(2) In fire doors (with fire resistance ratings of 1 or 1 1/2 hours) are fixed, wired glass encased in steel or approved metal frames, and do not exceed 100 square inches.

b. Further information. NFPA 101, sections 13-3.6.2.3 and 6-2.3.4, and NFPA 80, section 1-7.3 detail the requirements for vision panels.

5-9. Louvers, transoms and transfer grills

a. Safety functions. The hospital safety manager should ensure that louvers, transoms and transfer grills are not a part of hospital walls or doors per NFPA 101, section 13-3.6.4.

b. Exception to requirement. NFPA 101, section 13-3.6.4, stipulates that transfer grills are permitted in doors to toilet rooms, bathrooms, shower rooms, janitor (sink) closets and similar auxiliary spaces that do not contain flammable or combustible materials.

5-10. Dutch doors

a. Safety functions. To meet requirements of NFPA 101, section 13-3.6.3.6, the hospital safety manager should ensure that--

(1) Dutch doors have a fire-resistance rating of 20 minutes or are composed of 1 3/4-inch solid bonded wood core.

(2) Both the upper and lower leaves of the dutch doors are equipped with a latching device.

(3) The meeting edges of the upper and lower leaves are equipped with an astragel, rabbet, or bevel to prevent the passage of smoke through the door. (This smoke barrier between the two halves is similar to weather stripping.)

b. Further information. NFPA 80, Figure B-26 visually depicts a dutch door and a dutch door with two latches.

5-11. Power-operated doors

a. Background. Power-operated doors are installed at emergency room entrances, in operating rooms, and sometimes at other hospital entrances. These doors are usually on emergency power.

b. Safety functions. The hospital safety manager should ensure that per NFPA 101, section 5-2.1.9, power-operated doors--

(1) Have a "breakaway feature."

(2) Are capable of being opened manually in the event of a power failure to permit exit travel.

(3) Are capable of being closed in the event of a power failure to safeguard the means of egress, when necessary.

(4) Are capable of being manually swung open in the direction of the exit travel, if the door is a required exit.

c. Further information. NFPA 101, section 5-2.1.9, details requirements for power-operated doors.

5-12. Doors normally kept closed

a. Safety functions. The hospital safety manager should ensure that per NFPA 101, section 5-2.1.8, doors designed to remain closed (such as a stairway door, smoke door, or doors within hazardous areas) have a self-closing device and remain closed.

NOTE: Personnel often prop or secure doors open and disconnect or remove the door closer.

b. Exception to requirement. Doors may be held open with electromagnetic devices that are connected to the fire alarm system.

5-13. Stairways

The hospital safety manager should ensure that--

a. Stairways are used only for their intended purpose per NFPA 101, section 5-1.3.3.

b. Stairways provide a clear, continuous path of travel per NFPA 101, section 5-1.3.2. (Stairways are not suitable as areas for storage, vending machines, or waiting.)

c. Stair treads are uniformly slip resistant and free of projections or a lip that could trip the stair users, per NFPA 101, section 5-2.2.3.4.

5-14. Penetrations in walls and floors

a. Background. Penetrations are often not completely sealed to prevent the passage of smoke or flame. Pipes, conduits, cables, wires, air ducts, pneumatic ducts, and similar building service equipment often penetrate through floors, smoke barriers, and fire barriers.

b. Safety functions. To meet requirements of NFPA 101, section 6-3.6, the hospital safety manager should--

(1) Ensure all such penetrations and openings are sealed with a material capable of maintaining the smoke resistance or fire resistance of the floor or barrier.

(2) Examine periodically the areas above acoustical tile ceilings for penetrations in corridor walls, and especially above openings for corridor doors. This is an important item to check after a renovation project and prior to acceptance of new construction.

c. Further information. NFPA 101, section 6-3, details requirements for penetrations in walls and floors.

5-15. Fire alarm pull stations

The hospital safety manager should--

a. Ensure that a manual fire alarm pull station is provided in the natural path of escape near each required exit from an area per NFPA 101, section 7-6.2.3.

b. Ensure that each manual fire alarm pull station is accessible, unobstructed, visible, and of the same general type per NFPA 101, section 7-6.2.5.

c. Establish and implement a preventive maintenance program to ensure that the fire alarm system automatically transmits an alarm to the installation fire department. This includes quarterly inspections per JCAHO AMH Standard PL.2.3.1.2. NOTE: Quarterly testing does not apply to "intelligent" fire alarm systems. These systems typically have self-diagnostic capabilities. Intelligent fire alarm systems must have an annual preventive maintenance program. Systems provided with only supervisory and/or trouble signals do not qualify for this exception.

d. Document the results of inspection and testing.

e. Encourage personnel, when time and conditions permit, to activate the fire alarm during fire exit drills per JCAHO AMH Standard PL.2.3.2.3.

5-16. Waiting areas

a. Background. Waiting areas in older Army hospitals are sometimes crowded with patients and visitors sitting in corridors which are means of egress.

b. Safety functions. If waiting areas are open to the corridor, the hospital safety manager should ensure that each area--

(1) Does not exceed 600 square feet.

(2) Is located to permit the staff's direct supervision.

(3) Is equipped with automatic smoke detectors connected to the fire alarm system.

(4) Does not obstruct any access to required exits.

5-17. Incinerator rooms

a. Safety functions. The hospital safety manager should ensure that per NFPA 82, section 2-2.7.2, incinerator rooms have--

(1) Approved fire doors that--

(a) Are self-closing or that close automatically.

(b) Have a 1 1/2 hour fire-resistance rating and are suitable for Class B openings.

(2) Automatic fire extinguishing systems (sprinklers) per NFPA 82, section 2-2.7.3.

(3) A water source (faucet) with a vacuum breaker to prevent a cross connection.

(4) A hose for attachment to the faucet.

(5) A floor drain.

b. Further information. NFPA 82, chapters 2 and 3, details requirements for incinerator rooms.

5-18. Portable fire extinguishers

a. Background. Portable fire extinguishers are placed throughout the hospital at locations determined by the installation fire department per NFPA 10, section 1-6.3. Fire department personnel select extinguishers for each location based on the classification of the hazard and the classification and rating of the extinguisher per 29 CFR 1910.157.

b. Safety functions. The hospital safety manager should--

(1) Inspect fire extinguishers monthly and maintain written documentation per HSC Suppl 1 to AR 385-10, Appendix B.

(2) Ensure that extinguishers are installed on hangers, on brackets, or placed on shelves or in cabinets per NFPA 10, section 1-6.6.

(3) Ensure that fire extinguisher locations are well-marked, clearly visible, and free of any obstruction that might prevent easy access in the event of a fire per 29 CFR 1910.157.

(4) Teach hospital personnel how to handle and discharge a fire extinguisher as part of their annual fire prevention training.

c. Further information. NFPA 10, section 1-6.6; and 29 CFR 1910.157 detail requirements for portable fire extinguishers.

5-19. Protecting medical and dental records

a. Safety functions. The hospital safety manager should ensure that--

(1) Medical and dental records, including records at troop medical clinics and outlying dental clinics, are protected against fire and water damage.

(2) Record rooms are either equipped with an automatic fire sprinkler system, or have a fire resistance rating of 1 hour, when records are stored on open shelving per NFPA 232, section 3-12.

b. Alternative protection. Enclosed six-sided noncombustible cabinets provide a practical alternative for securing records.

c. Further information. NFPA 232, sections 3-12 and 3-13, details requirements for protecting records.

5-20. Kitchen exhaust hoods

The hospital safety manager should ensure that--

a. Kitchen exhaust hoods, duct systems, grease removal devices, and cooking equipment are protected with approved fire extinguishing equipment per NFPA 96, sections 7-1.1 and 7-1.2.

b. The fire extinguishing system is equipped with a manual release installed at a safe distance from the exhaust hoods, in a path of exit or egress per NFPA 96, section 7-3.1.1.

c. The release on the extinguisher is marked clearly with easy-to-read, posted instructions for activating the system.

Chapter 6
Laboratory Safety

6-1. Chemical hygiene officer

a. Background. The chemical hygiene officer writes the Laboratory Chemical Hygiene Plan which includes the fire evacuation plan, and procedures for controlling chemical spills. The chemical hygiene officer's other duties include--

(1) Developing and implementing guidance for handling hazardous chemicals in the laboratory per 29 CFR 1910.1450.

(2) Reviewing the Chemical Hygiene Plan at least annually and revising the document as necessary to reflect current regulatory practice.

(3) Reviewing SOPs for all laboratory operations using hazardous chemicals.

(4) Conducting preoperational surveys of all new laboratory operations using hazardous chemicals.

(5) Requesting annual surveys from the Preventive Medicine Service.

(6) Maintaining a list of chemicals that are routinely used in the laboratory and a separate list of chemicals that are stored. The lists should reflect quantity estimates.

(7) Providing training to all employees on the hazards associated with the laboratory operations and maintaining records of such training.

(8) Maintaining MSDSs for all chemicals that are routinely used and posting the MSDSs so the employees have easy access to them.

b. Safety functions. Per 29 CFR 1910.1450, the hospital safety manager should--

(1) Ensure that a chemical hygiene officer for the hospital laboratory is appointed on orders.

(2) Conduct periodic inspections of all laboratories where hazardous chemicals are used.

(3) Investigate all reported accidents that result in exposure to hazardous chemicals.

(4) Review plans and specifications for all laboratory construction or renovation to ensure appropriate design criteria are incorporated.

(5) Provide hazard communication training.

6-2. Fire reporting procedures

a. Background. Fire reporting procedures for the laboratory should parallel those of the hospital with some additional considerations by the safety manager.

b. Safety functions. The hospital safety manager should--

(1) Ensure the laboratory safety officer keeps security informed of areas and items of a hazardous nature that require special surveillance.

(2) Ensure that all doors leading to laboratories in healthcare facilities are marked with the emblem described in NFPA 704 to indicate the fire hazards of materials in the area per NFPA 99, section 10-8.2.1.

c. Further information. NFPA 99, section 10-8.1.2, details responsibilities for safety personnel pertaining to laboratory fire protection and prevention.

6-3. Prohibition of eating, drinking, and smoking

The hospital safety manager should ensure that--

a. Eating, drinking, and smoking are prohibited in the laboratory per 29 CFR 1910.141(g)(2)(4).

b. The hospital provides laboratory personnel with a lounge or break room for coffee breaks and lunch.

6-4. Labeling refrigerators

The hospital safety manager should--

a. Ensure that every laboratory refrigerator is labeled clearly to indicate whether it is safe for storing flammable liquids per NFPA 99, section 10-7.2.5.

b. Encourage the labeling of all refrigerators, as a good safety practice, to prohibit the storage of food.

6-5. Mouth pipetting

Mouth pipetting is prohibited in hospital laboratories per chapter IX of the College of *American Pathologists' Guidelines for Laboratory Safety*. The hospital safety manager should ensure that hospital laboratory personnel comply with this requirement.

6-6. Storing flammable liquids and acids

a. The hospital safety manager should ensure that--

(1) No more than 10 gallons of flammable liquids are stored outside of an approved flammable liquids cabinet per NFPA 99, section 10-7.2.2.

(2) The total capacity of approved flammable liquids cabinets in the laboratory does not exceed 60 gallons per NFPA 99, section 10-7.2.2.

(3) Flammable liquids are not stored near any exit corridor or passageway leading to an exit per NFPA 99, section 10-7.2.2.

(4) As a good safety practice, laboratories either store acids in an acid storage cabinet designed specifically for this use, or in a sandbox on the floor of a cabinet.

(5) As a good safety practice, acid storage cabinets are labeled clearly to indicate the contents.

b. Further information. NFPA 99 details requirements for the storage of flammable liquids.

APPENDIX A

References

ANSI Z358.1-1990
American National Standard for Emergency Eyewash and Shower Equipment

AR 40-5
Preventive Medicine

AR 420-43
Electrical Services

AR 600-63
Army Health Promotion

AR 700-68
Storage and Handling of Compressed Gas Cylinders

CGA Pamphlet P-1
Safe Handling of Compressed Gases in Containers

CGA Pamphlet P-2
Characteristics and Handling of Medical Gases

CGA Pamphlet G-4
Oxygen

College of American Pathologists' Guidelines for Laboratory Safety

DA Pam 40-501
Hearing Conservation

HSC Regulation 750-1
Maintenance of Medical Equipment

HSC Supplement 1 to AR 385-10
The Army Safety Program

JCAHO
Joint Commission for the Accreditation of Hospitals, Accreditation Manual for Hospitals

NFPA 10
Standard for Portable Fire Extinguishers

NFPA 70
National Electrical Code

NFPA 80
Fire Doors and Windows

NFPA 82
Standard on Incinerators, Waste and Linen Handling Systems and Equipment

NFPA 96
Standard for the Installation of Equipment for the Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment

NFPA 99
Standard for Health Care Facilities

NFPA 101
Life Safety Code

NFPA 232
Standard for the Protection of Records

NFPA 704
Identification of the Fire Hazards of Materials

NSF Standard 7
Food Service Refrigerators and Storage Freezers
(American National Standard/NSF International Standard 7-1990)

TB MED 6
Occupational Health and Safety in Dental Clinics

TB MED 245
Warning Tag for Medical Oxygen Equipment

TB MED 506
Occupational Vision

Uniform Federal Accessibility Standards

29 CFR 1910
Title 29, Code of Federal Regulations, Part 1910
Labor, Occupational Safety and Health Standards

APPENDIX B

Abbreviations

ADL
area dental laboratory

ANSI
American National Standards Institute

AR
Army Regulation

CGA
Compressed Gas Association

CFR
Code of Federal Regulations

DA
Department of the Army

DD
Department of Defense

DA Pam
Department of the Army Pamphlet

DEH
Director of Engineering and Housing

DENTAC
U.S. Army Dental Activity

GFCI
ground-fault circuit interrupter

HSC
Health Services Command

JCAHO AMH
Joint Commission for the Accreditation of Hospitals, Accreditation Manual for Hospitals

MEDCEN
U.S. Army Medical Center

MEDDAC
U.S. Army Medical Department Activity

MSDS
material safety data sheet

NFPA
National Fire Protection Association

OSHA
Occupational Safety and Health Administration

PCE
protective clothing and equipment

SCBA
self-contained breathing apparatus

SOP
standing operating procedure

Suppl
Supplement

TB MED
technical bulletin, medical

TG
technical guide

USAEHA
U.S. Army Environmental Hygiene Agency

APPENDIX C

Technical Assistance

C-1. Requests for assistance

Requests for services should be directed through command channels of the requesting activity to Commander, U.S. Army Environmental Hygiene Agency (USAEHA), ATTN: HSHB-MI-HA, Aberdeen Proving Ground, MD 21010-5422, with an information copy furnished to the Commander, U.S Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000.

C-2. Program services

The numbered USAEHA support programs and the telephone numbers (DSN 584-XXXX or Commercial (410) 671-XXXX) are listed below.

Program Number	Program Title	Program Manager	Telephone Number
11	Occupational Medicine Residency	LTC Deeter	4312
16	Pest Management	Mr. Wells	3613
17	Pesticide Risk Management	Dr. Evans	4131
24	Radio Frequency Radiation/Ultrasound	Mr. Hicks	4834
25	Laser/Optical Radiation	Dr. Sliney	3932
27	Industrial Health Physics	Mr. Edge	3526
28	Medical Health Physics	CPT Bower	3548
31	Water Supply Management	MAJ Moxley	3919
32	Wastewater Management	Mr. Fifty	3816
37	Hazardous and Medical Waste	Mr. Resta	3651
38	Ground Water and Solid Waste	Mr. Bauer	2025
39	Health Risk Assessment	MAJ Legg	2953
42	Air Pollution Source Management	Mr. Daughdrill	3500
43	Ambient Air Quality Management	Mr. Guinivan	3500
51	Hearing Conservation	Dr. Ohlin	3797
52	Environmental Noise	Dr. Luz	3829
54	Special Industrial Hygiene Services	Ms. Doganiero	3928
55	Industrial Hygiene	MAJ Sheaffer	2559
56	Healthcare Hazards	CPT McKee	3040
57	Sanitation and Hygiene	MAJ McDevitt	2488
59	Industrial Hygiene Management	Ms. Monk	2439
63	Vision Conservation	LTC Thompson	2714
64	Occupational and Environmental Medicine	MAJ Gum	2714
65	Occupational Health Nursing	Dr. Dash	2714
66	Special Document Development	Ms. Weyandt	3254
69	Health Hazard Assessment	LTC Murnyak	2925
74	Analytical Quality Assurance	CPT Lukey	3269
75	Toxicology Assessment	Mr. Weeks	3627
76	Organic Environmental Chemistry	Mr. Belkin	3739
78	Radiological/Inorganic Chemistry	Dr. Boldt	2619

C-3. Direct support

USAEHA Activity - North, Fort George G. Meade, MD	LTC Stone, DSN 923-7403
USAEHA Activity - South, Fort McPherson, GA	LTC Jakubowski, DSN 572-3332
USAEHA Activity - West, Fitzsimons AMC, CO	LTC Aiken, DSN 943-3737